

ABSTRACT

An object of this invention is to provide a time-division synchronous wireless modem device which is highly efficient in using communication slots. The time-division synchronous wireless modem device according to this invention is provided at each of a plurality of wireless stations in a wireless system which transmits and receives communication packets containing a header between the individual wireless stations via one wireless channel by using, on a one-by-one basis, any of communication slots obtained through time division of a predetermined transmission cycle period by a predetermined unit transmission time, and includes: a modem unit which transmits and receives the communication packet; a communication state determination unit which obtains a transmission cycle period and a vacant communication slot from information contained in the header of the received communication packet; and a transmission timing controller which selectively determines an arbitrary one of the communication slots in a next transmission cycle period when the communication packet is not received during the entire span of the one transmission cycle period, or selectively determines the one of the communication slots to be used by estimating a vacant one of the communication slots in the next transmission cycle period from the header of the communication packets when the communication packet is received.